

## Synthetic Imaging Maneuver Optimization (SIMO), Phase II

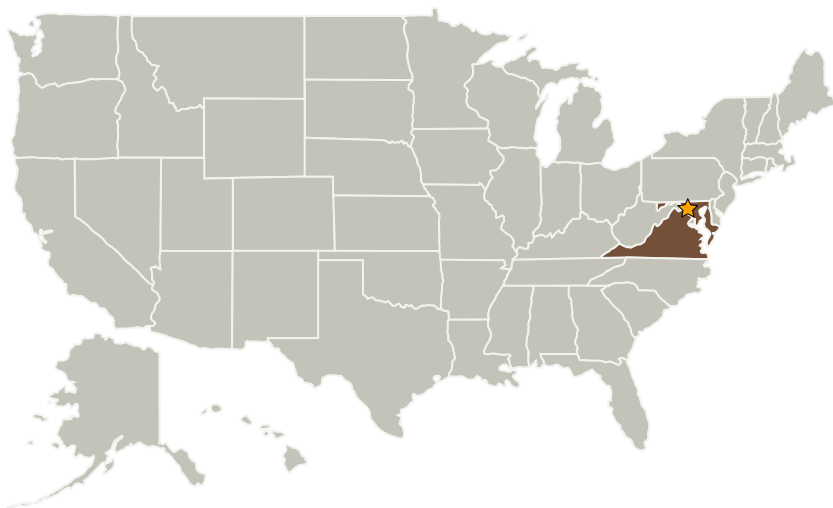
Completed Technology Project (2009 - 2011)



## Project Introduction

Aurora Flight Sciences (AFS), in collaboration with the MIT Space Systems Laboratory (MIT-SSL), proposed the Synthetic Imaging Maneuver Optimization (SIMO) program to develop a methodology, calibrated through hardware-in-the-loop testing, to optimize S/C maneuvers to more efficiently synthesize images for missions such as Stellar Imager (SI). Time and fuel-optimal maneuvers are only a part of the optimization problem. Selecting the maneuver waypoints (number and location) determines the quality of the synthesized image. The number of S/C, the size of the sub-apertures, and the type of propulsion system used also impacts imaging rate, propellant mass, and mission cost. Capturing all of these mission aspects in an integrated mission optimization framework helps mission designers to select the most appropriate architecture for meeting the needs and constraints of missions such as SI.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Center / Facility:**

Goddard Space Flight Center (GSFC)

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Aurora Flight Sciences Corporation	Supporting Organization	Industry	Cambridge, Massachusetts

Primary U.S. Work Locations	
Maryland	Virginia

## Project Transitions

**March 2009:** Project Start**September 2011:** Closed out

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

## Technology Areas

**Primary:**

- TX17 Guidance, Navigation, and Control (GN&C)
  - └ TX17.3 Control Technologies
    - └ TX17.3.3 Ground-based Maneuvering/Pointing/Station-keeping Control Algorithms